CHROMOSOMAL OBSERVATIONS ON *FUCHSIA* SPECIES AND ARTIFICIAL HYBRIDS

The two largest sections of *Fuchsia*, sects. *Fuchsia* and *Hemsleyella*, are concentrated in the tropical Andes and together comprise 75 of the nearly 105 species of the genus. Both sections have been recently revised by Berry (1982, 1985), who reported chromosome numbers for 52 species. Species from both sections are primarily diploid ($n = 11$; 43 species), but seven are tetraploid ($n = 22$), and one species has both diploid and tetraploid populations. In an effort to obtain counts for the remaining species and for interesting new collections or interspecific hybrids in these sections, we examined eight specimens cultivated by members of the Dutch Circle of Fuchsia Friends in 1986. Young floral buds were fixed in Carnoy's solution and stained in 1% aceto-orcein, as described in Berry (1982). Photomicrographs were taken with a Nikon Biophoto camera using Kodak Technical Pan film.

Results of the chromosomal observations are presented in Table 1 and Figure 1. The diploid counts for *F. decussata*, *F. furfuracea*, *F. scabriuscula*, and *F. simplicicaulis* are the first reports of chromosome numbers for these species, all belonging to sect. *Fuchsia*. They lend further support to Berry's (1982) finding of predominant diploidy in that section. The collection of *F. cinerea* studied, however, proved to be tetrapoloid, unlike an earlier diploid count for another population of this species (Berry, 1982). *Fuchsia cinerea* occurs in the same high-elevation areas of northern Ecuador as *F. corollata* and *F. vulcanica*, two members of the *F. petiolaris* species group that also have tetraploid populations, as well as problematical species limits. A more extensive cytological sampling of the *Fuchsia* populations in this area would be helpful in resolving the complex variation patterns observed in this group and to determine if tetraploidy has arisen repeatedly in these taxa.

Fuchsia magdalenae (sect. *Fuchsia*) was introduced into cultivation just over ten years ago

TABLE 1. *Additional chromosome counts in* Fuchsia.[1]

Taxon	Meiotic Chromosome Number	Collection Data[2]
F. cinerea P. Berry	$n = 22$	*Berry 004-86*, from seed of *Koenen 153-06-81*, Prov. Carchi, Ecuador, 6 km NE of El Angel
F. decussata R. & P.	$n = 11$	*Berry 014-86*, from seed of *Berry 3049*, Dept. Ayacucho, Peru
F. furfuracea Johnst.	$n = 11$	*Berry 010-86*, from seed of *Solomon 12573*, Dept. La Paz, Bolivia
F. scabriuscula Benth.	$n = 11$	*Berry 012-86*, from seed of *Berry 3574*, Prov. Pichincha, Ecuador
F. simplicicaulis R. & P.	$n = 11$	*Berry 016-86*, from plants long established in cultivation in Europe, originally from Peru
F. magdalenae Munz	$n = 22$	*Berry 017-86*, from progeny of the type collection of *F. lampadaria* J. O. Wright, originally from Santa Marta, Colombia
F. magdalenae × *F. denticulata*	$2n = 33$[3]	*Berry 009-86*, artificial cross made by D. Reiman
F. magdalenae × *F. pilaloensis*	$2n = 33$[3]	*Berry 018-86*, artificial cross made by D. Reiman

[1] All species belong to sect. *Fuchsia* except for *F. pilaloensis*, from sect. *Hemsleyella*.
[2] All collections from plants cultivated by Mrs. Drude Reiman-Dietiker in Hollandsche Rading, the Netherlands, with vouchers at MO.
[3] Many laggard and bridge chromosomes at Anaphase I.

FIGURE 1. *Photomicrographs of meiotic metaphase (A, B), anaphase (C), and telophase (D) chromosomes of* Fuchsia.—*A.* F. magdalenae *(2n = 22II)*.—*B–D.* F. magdalenae × F. denticulata *(2n = 33); note the numerous laggard and bridge chromosomes in C and D. Scale = 10 μm.*

(Wright, 1978) and has since been used to produce a novel series of attractive interspecific crosses in England and the Netherlands. The original, parental stock of *F. magdalenae* was cytologically re-examined, showing it to be tetraploid with normal bivalent formation (Fig. 1A). This agrees with previous counts by Wright (1978) and Berry (1982).

The first *F. magdalenae* hybrid, with the diploid *F. denticulata* (Berry, 1982), yielded triploid progeny with meiotic irregularities such as bridges and laggard chromosomes (Fig. 1B–D). The second *F. magdalenae* hybrid was with *F. pilaloensis*, a member of the apetalous sect. *Hemsleyella*. The chromosome number of this species was not reported in Berry's (1985) revision of the section, but the triploid chromosome number of the F_1 hybrid with *F. magdalenae* indicates that it must be diploid. Unless spontaneous or induced chromosome doubling occurs in the F_1 of these triploids, they are likely to prove infertile and will need to be propagated vegetatively.

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